REMARKS

The Examiner is thanked for the due consideration given the application. The specification has been amended to remove references to the claims and to improve the language.

Claims 1-19 are pending in the application. Claims 1-14 have been amended to improve the language in a non-narrowing fashion. Claims 15-18 are new and have been presented to better set forth embodiments of the present invention. Claim 19 is new and generally corresponds to the subject matter of claim 10 recited without "means" language.

No new matter is believed to be added to the application by this amendment.

Rejections Based on YUKI et al.

Claims 1-5, 7, and 10-14 have been rejected under 35 USC §102(b) as being anticipated by YUKI et al. (U.S. Publication 2004/0003781). Claim 6 has been rejected under 35 USC §103(a) as being unpatentable over YUKI et al. in view of TOSA et al. (U.S. Patent 5,170,751). Claims 8 and 9 have been rejected under 35 USC §103(a) as being unpatentable over YUKI et al. in view of POSSELT ((U.S. Patent 5,992,353)

These rejections are respectfully traversed.

The present invention pertains to pressurizing a medium in a combustion chamber that is illustrated, by way of example, in Figures 1a and 1b of the application, which are reproduced below.

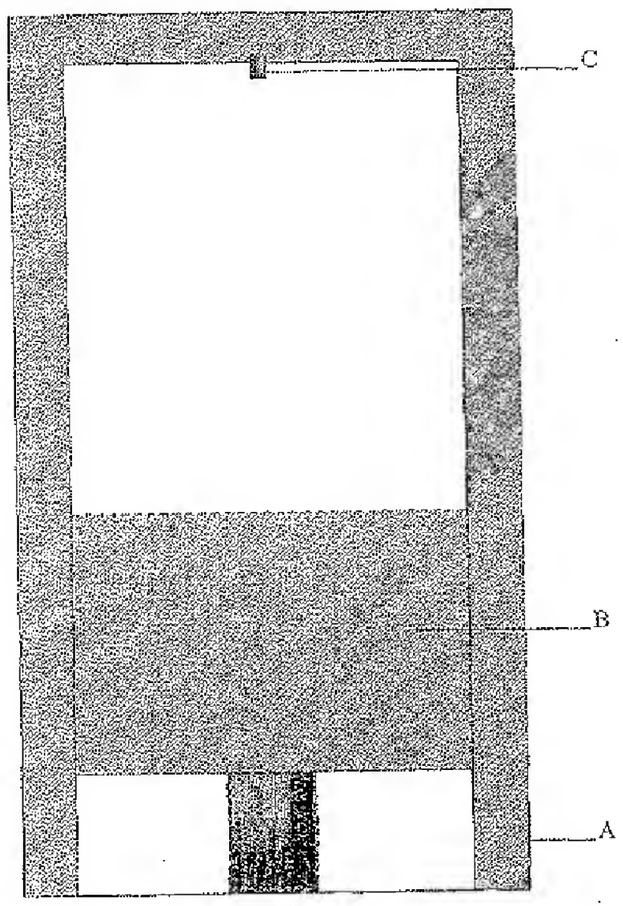


Fig. 1a

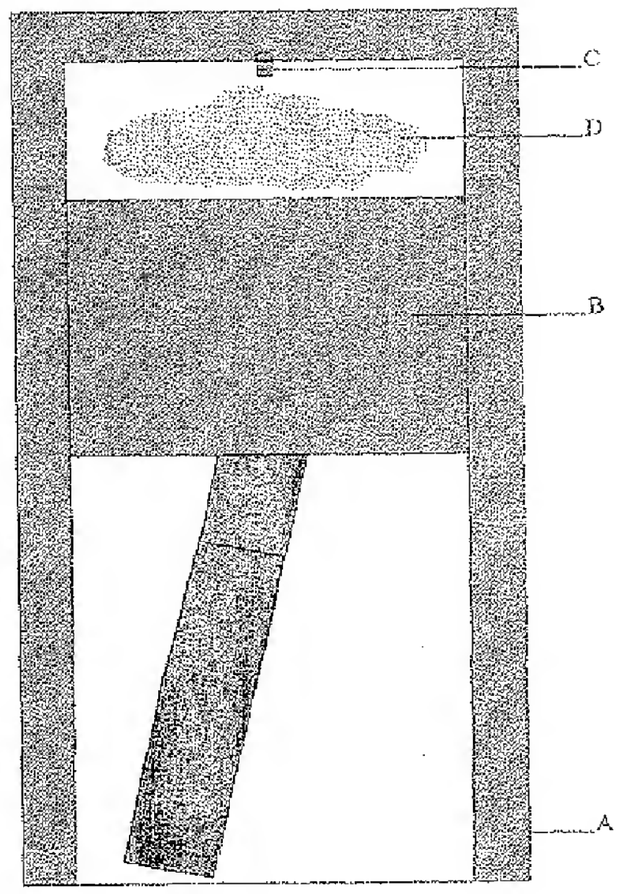


Fig. 1b

In the present invention, adiabatic compression is used as a means for ***reducing the amount of work required in order to achieve a predetermined pressure in a compression chamber during a compression stroke thereof.***

For this purpose a liquid, preferably water, heated and pressurized in accordance with the teachings of the present invention, is introduced into the compression chamber during a compression stroke thereof. The liquid is heated and pressurized to such an extent that, at the moment of introduction thereof, the water droplets will explode and form a cooling atmosphere inside the chamber.

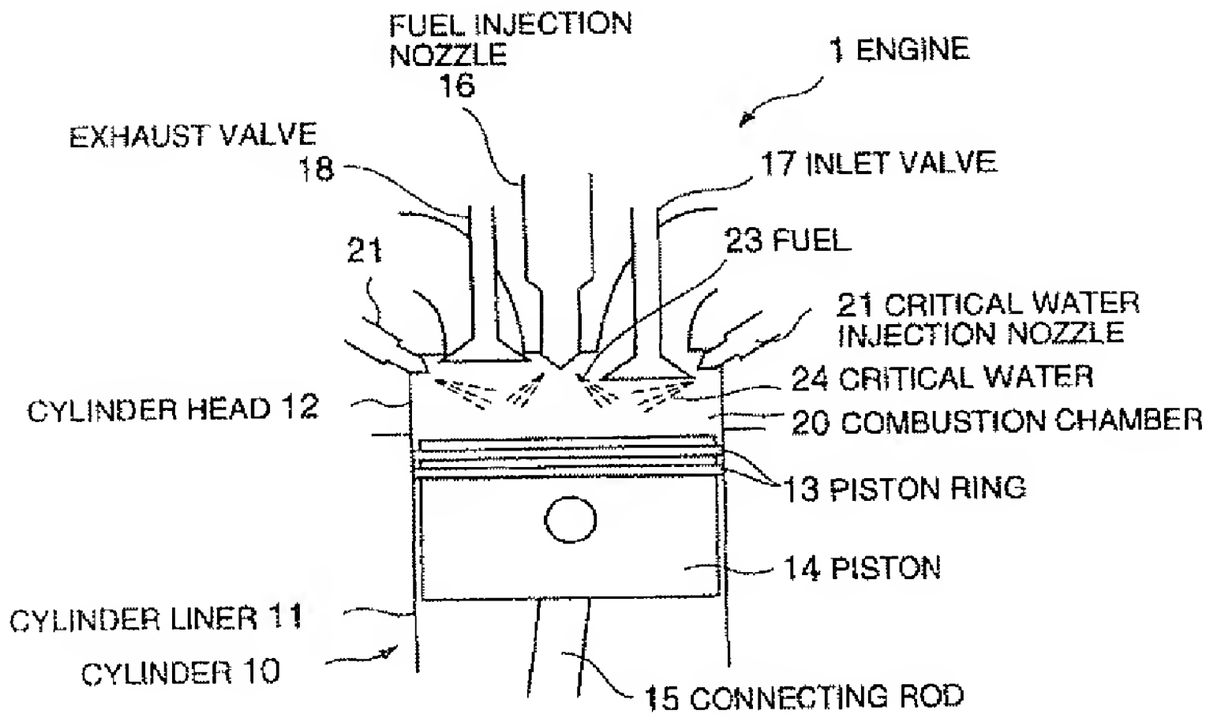
More precisely the liquid is heated to such an extent that the ***steam pressure*** of the liquid is above the pressure in the chamber. It should be observed that the steam pressure is not

equal to the pressure of the water introduced into the chamber. For a predetermined temperature and pressure of the liquid, the latter will present a given steam pressure.

For example, water of 250°C will have a steam pressure of approximately 40 bar, while water of 147°C will only have a steam pressure of approximately 4.5 bar (see Table at pages 9 and 10 of present application). Accordingly, contrary to the opinion expressed in the Official Action, it is not inherent that the liquid must have a higher steam pressure than the pressure in compression chamber in order to be introduced into the latter. It will suffice that the actual pressure of the liquid is above the pressure reigning in the combustion chamber.

YUKI et al. pertain a method of reducing the generation of NOx gases during a combustion process of an internal combustion engine, by utilizing the cooling effect of water introduced into the combustion chamber during a compression stroke thereof. The Official Action refers to Figure 1 of YUKI et al., which is reproduced below.

FIG.1



However, YUKI et al. do not focus on the relation between pressure in the combustion chamber and steam pressure of introduced water at the moment of introduction of water in the chamber.

In contrast, the present invention is very clear on the point that the steam pressure should be such that the droplets of the liquid explode upon entering the compression chamber. YUKI et al., on the other hand, prefer that the water be introduced at a stage where the water maintains its liquid state and mixes with the fuel that is introduced in the chamber. See paragraph 25 of YUKI et al., according to which the water particles should exist in the combustion chamber before the injected fuel ignites, and interfere with the fuel. Though the water may have a cooling effect it will not have the same cooling effect as if permitted to explode and form a steam inside the compression chamber.

Accordingly, there is no support in YUKI et al. for the conclusion that the steam pressure there be higher than the pressure in the combustion chamber at the moment of introduction of the water, and that the present invention is anticipated by YUKI et al.

Further, YUKI et al. present a solution to another problem (NOx reduction) than the one forming the basis of the present invention, and that, therefore, the person skilled in the art has had no reason to turn to YUKI et al for the solution of the latter problem, namely the reduction of compression work, either in a combustion chamber or a compression chamber of a compressor.

YUKI et al. is thus non-analogous art to the present invention.

Additionally, YUKI et al. teaches 250°C as the lowest temperature of the water to be introduced. In contrast, the present invention can be practiced at temperatures less than 250°C. See claims 15 and 17.

Yet further, the Official Action asserts that YUKI et al. teach "the liquid being pressurized to such an extent that, at the moment of introduction, it has a steam pressure that is above the pressure that, at the moment of introduction, exists in the compression chamber (inherent, steam must be at a higher pressure to be injected)". Paragraph 3.

However, as mentioned above, it is not inherent that the liquid must have a higher steam pressure than the pressure in

compression chamber in order to be introduced into the latter. It will suffice that the actual pressure of the liquid is above the pressure reigning in the combustion chamber.

Moreover, even if one assumes *arguendo* that this pressure is inherent, this inherency is no bar to patentability.

Accidental results not intended and not appreciated do not constitute anticipation. Eibel Processing Co. v. Minnesota and Ontario Paper Co., 261 US 45 (1923); Mycogen Plant Science, Inc. v. Monsanto Co., 243 F.3d 1316, 1336, 5 USPQ2d 1030, 1053 (2001). Further, the Federal Circuit stated in In re Robertson, that "to establish inherency, extrinsic evidence must make clear that the missing descriptive matter was necessarily present in the thing described in the reference, and would be so recognized by persons with ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a set of circumstances is not sufficient." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949 (Fed. Cir. 1999). Further, it has been held that the mere fact that a certain thing may result from a given set of circumstances is not sufficient, and occasional results are not inherent. MEHL/Biophile International v. Milgraum, 192 F.3d 1362, 1365, 52 USPQ2d 1303 (Fed. Cir. 1999).

As a result, YUKI et al. clearly fails to anticipate independent claims 1 and 2 of the present invention. The

teachings of TOSA et al. and POSSELT fail to address the above-described deficiencies of YUKI et al., and a *prima facie* case of unpatentability has thus not been made. Claims depending upon claims 1 or 2 are patentable for at least the above reasons.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statement filed July 14, 2006 and for making an initialed PTO-1449 Form of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The rejections are believed to have been overcome, obviated or rendered moot and no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment

to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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